A dissertation on

VARIOUS CLINICAL ENTITIES PRESENTING AS RIGHT ILIAC FOSSA MASS-A COMPARISON OF THE SENSITIVITIES OF THE CLINICAL, RADIOLOGICAL AND HISTOPATHOLOGICAL DIAGNOSES

Dissertation submitted to
THE TAMIL NADU
Dr.MGR MEDICAL UNIVERSITY,
CHENNAI

M.S.DEGREE IN GENERAL SURGERY
BRANCH-1

MADRAS MEDICAL COLLEGE &

RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL

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CERTIFICATE

This is to certify that this dissertation entitled **"VARIOUS CLINICAL ENTITIES PRESENTING AS INTRAABDOMINAL RIGHT ILIAC FOSSA MASS-A COMPARISON OF THE SENSITIVITIES OF THE CLINICAL, RADIOLOGICAL AND HISTOPATHOLOGICAL DIAGNOSES"** has been carried out by **Dr.AISHWARYA KRISHNAN UNNI** under my guidance and supervision in partial fulfillment of the rules and regulations laid down by The Tamil Nadu Dr.MGR Medical University, Chennai, Tamil Nadu for M.S.(General Surgery) during the academic period from May 2010-2013.

Dr.S.DEIVANAYAGAM, M.S,
Professor and HOD
Dept of General Surgery
Madras Medical College
Chennai – 600 003

Dr.R.G. SANTHASEELAN, M.S.
Professor,
Dept. of General Surgery,
Madras Medical College
Chennai – 600 003

Dr.V.KANAGASABAI, M.D,
DEAN
Madras Medical College
Chennai – 600 003

DECLARATION

I solemnly declare that the dissertation titled **"VARIOUS CLINICAL ENTITIES PRESENTING AS INTRAABDOMINAL RIGHT ILIAC FOSSA MASS-A COMPARISON OF THE SENSITIVITIES OF THE CLINICAL, RADIOLOGICAL AND HISTOPATHOLOGICAL DIAGNOSES"** was done by me at Rajiv Gandhi Government General Hospital,Chennai during the period of May 2010-2013 under the guidance and supervision of **Prof.R.G.SANTHASEELAN, M.S.** This dissertation is submitted to The Tamil Nadu Dr.MGR Medical University towards the partial fulfillment of the requirement for the award of MS Degree In General Surgery Branch-1

Dr.Aishwarya Krishnan Unni

Place:

Date:

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CONTENTS

INTRODUCTION

There are many abdominal conditions that present clinically as palpable lumps in the abdomen. The site and clinical characteristics of the lump as elicited by examination helps to get a diagnosis in most of these cases. However many require investigations like imaging to confirm clinical clues and some will need intra operative/pathological analysis for a definitive diagnosis.

The abdomen is traditionally divided into 9 regions for description by 2 vertical and horizontal lines. The 2 vertical lines are extensions of the midclavicular lines and extend to the midinguinal points.The upper horizontal line is a transpyloric line passing midway between the umbilicus and the xiphisternum. The lower transtubercular line connects the 2 of the tubercles of iliac crest. The 9 regions are

1. Right hypochondrium
2. epigastrium
3. Left hypochondrium
4. Right lumbar
5. Umbilical region

6. Left Lumbar

7. Right Iliac Fossa

8. Hypogastrium

9. Left iliac fossa

The anatomic structures occupying the right iliac fossa are the caecum, appendix, the terminal ileum. Retroperitoneally the iliac vessels, right ureter, lymphnodes, psoas muscle are situated. Pathologically enlarged ovaries, uterus, cysts can come to lie in the right iliac fossa.

The common pathologic conditions giving rise to a palpable lump in the right iliac fossa are

1. Appendicular mass
2. Carcinoma of the Caecum
3. Ileocecal Tuberculosis
4. Psoas abscesses
5. Intussuceptions
6. Ovarian tumors

This dissertation aims to know the clues in the patient history and findings on examination that will help to arrive at a particular clinical diagnosis and then compare the sensitivity of the clinical diagnosis with diagnosis at imaging. The accuracy of clinical diagnosis and imaging diagnosis is then compared with intra operative and histopathologic findings.

REVIEW OF LITERATURE

APPENDICULAR MASS

This condition occurs following an episode of acute appendicitis and is formed by the omentum and ileal loops walling off the inflammation in the appendix. Traditionally if a diagnosis of appendix mass is made pre operatively, then patient is started on a conservative regimen called the Oschner Sherren's regimen. Surgery is indicated only if patient fails to respond to conservative therapy. All patients successfully managed with conservative treatment undergo an interval appendicectomy 6 weeks after the episode of acute appendicitis. Non operative conservative treatment fails if there is a well defined abscess at presentation. In such cases percutaneous image guided or operative drainage is indicated.

CARCINOMA OF THE CAECUM

Adenocarcinoma of the colorectum is the 3rd most common cause of deaths in both men (after prostate and lung/bronchus) and women (after breast and lung/bronchus). Colorectal carcinoma occurs in hereditary, sporadic, or familial forms.Over the past few decades,carcinoma of the right colon has increased in incidence when

compared to carcinoma in the left colon and rectum. About 50% of CRC are present in the rectum (15%) or sigmoid colon (38%) and 30% in the cecum/ascending colon, equally distributed elsewhere in the gastrointestinal tract. The peak incidence of colon cancer is in the 7th decade. Most colonic carcinomas are believed to arise as polyps and undergo transformation from an adenoma to a carcinoma.

Risk Factors Associated with Colon Cancer [3]	
Risk Factor	**Comment**
Geographic variations	High risk in Western countries and low risk in developing countries
Age	Risk more after the fifth decade
Diet	Total fat and animal fat diets increase risk
Physical inactivity	Obesity and sedentary life style increases risk
Adenoma	Risk is dependent on type and size
FAP penetrance in gene carriers	100%
HNPCC penetrance in gene carriers	80%

Hamartomatous polyps	Risk increased with Peutz-Jeghers syndrome and juvenile polyposis but not with isolated juvenile polyps
Previous history of colon cancer	Increased risk for recurrent carcinomas
Ulcerative colitis	10–20% after 20 years
Radiation	Associated with a mucinous histology of cancer and a poor prognosis
Ureterosigmoidostomy	200–500 times increased risk at or adjacent to the uretero-colonic anastomosis

Vogelstein and colleagues in 1988 pioneered a genetic model for colorectal tumorigenesis that has been known as the adenoma-carcinoma sequence

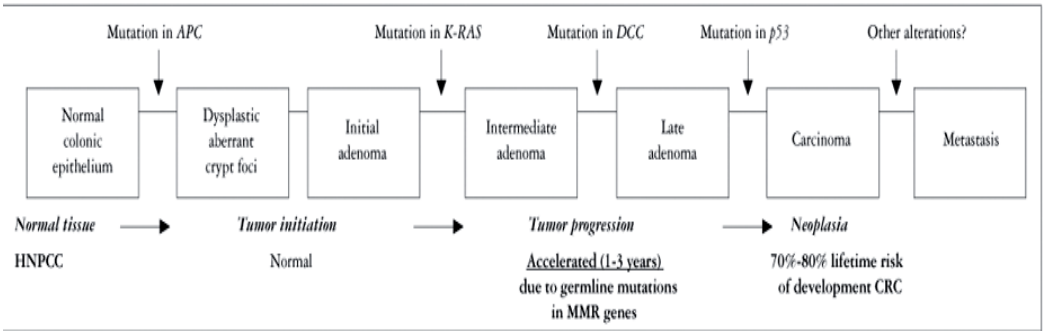


FIGURE 1 – ADENOMA- CARCINOMA SEQUENCE

Clinical features

Carcinomas in the right colon are often silent or may present with melena, fatigue due to anemia or abdominal pain if tumor is advanced. Left colon cancers commonly present with obstruction, but changes in bowel habits and intestinal obstruction may be seen in advanced cases too.

Carcinoma of the caecum can also present as appendicitis in the elderly. It is also not uncommon for the caecal carcinoma to perforate posteriorly and form an abscess in the psoas muscle. Ascites, fever and huge liver mass maybe other modes of presentation.

Investigations

Colonoscopy

Colonoscopy is the best investigation for confirming the diagnosis of CRC.Biopsy of the tumor can be taken to confirm the diagnosis and to remove synchronous neoplastic polyps. (the incidence is about 4%). Apart from determination of the circumferential and longitudinal extent of a colonic lesion, colonoscopy addresses functional aspects such as an active bleeding or an imminent bowel obstruction by cauterization, laser

ablation, or placement of a self-expanding wall stent and thus converting an emergency situation into an elective case.

Contrast Enema

They can more accurately visualize the anatomic position of a colonic lesion. Most commonly, a barium and air double-contrast enema will be used; however, if there is any suspicion of a perforation, administration of barium is contraindicated (risk of barium peritonitis), and instead of barium a water-soluble contrast material like gastrograffin is used. The typical finding of a colon cancer is a fixed filling defect with destruction of the normal mucosal pattern in an annular configuration ("apple core appearance"), as opposed to an intact mucosal pattern in a filling defect from an extramucosal compression or due to chronic diverticulitis. Although preoperative histologic confirmation of a colon cancer is preferable, an unequivocal and characteristic morphological finding on a barium enema or colonoscopy is sufficient evidence to proceed to surgery. Contrast studies have advantage of a better passage through even severely obstructing lesions and that they commonly reach the cecum. In addition, they are superior in visualizing diverticula or a suspected fistulization between the colorectum and the other pelvic

organs. The major disadvantages of the contrast studies is the inability to take biopsies and to detect small lesions.

Virtual colonoscopy (or CT colonography) and the capsule endoscopy study are non invasive high-tech alternatives. However CT colonography has got a considerable rate of false-negative and false-positive results.

Faecal occult blood tests (FOBT)

FOBT detect microscopic amounts of bleeding from the malignancy which are not detectable in the stool by the naked eye. Most are guaic tests which depend on the peroxidase action of hemoglobin.

Evaluation for metastatic disease is done by a detailed clinical examination, CXR, LFTs, and carcino-embryonic antigen (CEA) level. CEA can be elevated in cancer of the stomach.SI, inflammation of the bowel,lung and breast cancer, and smoking. CEA level determination may prove helpful in some settings, e.g., when the return of an elevated preoperative CEA level to normal indicates a complete tumor resection or when a postoperatively elevated level may indicate residual or recurrent disease. Ultrasonogram of the abdomen has to be done for every case to

rule out liver metastasis and ascites. CT or MRI is more accurate in ruling out liver metastasis and peritoneal metastasis.

Pathology

Carcinoma, i.e., a malignant epithelial tumor, is the most frequent malignancy of the entire gastrointestinal tract. Based on the endodermal glandular tissue origin, adenocarcinoma and its histologic variants are by far the predominant histopathology and account for 90–95% of all colorectal malignancies. Squamous and adenosquamous carcinoma are exceptionally rare and are sited characteristically in the anorectal junction.

WHO Histopathologic Classification of Colorectal Cancers and Their Significance

Histopathologic Types	**Pathology**	**Prognosis**
Adenocarcinoma	90–95% of the colorectal malignancies	
Mucinous adenocarcinoma	10% of all colorectal cancers; the extracellular type is more common than the intracellular variety	Controversial whether mucinous histology itself is an independent negative prognostic factor

Signet ring cell carcinoma		
Small cell carcinoma (oat cell)	<1%; histologically identical to small cell cancer of the lung	Extremely poor prognosis and almost all cases have lymph node, liver and brain metastasis
Small cell adenosquamous carcinoma		
Squamous cell carcinoma		
Undifferentiated carcinoma (medullary)		

Grossly Colonic carcinoma maybe of 4 vareities:

1. Ulcerative
2. Polypoidal
3. Tubular
4. Stricturing

Staging

Various staging systems are available for the purpose of staging of colon cancers. The more popular ones are Duke's staging. Astler Coller modification of Duke's staging and the TNM staging by the AJCC.

Astler Coller modification of Duke staging

Stages	Descriptions
A	Tumour confined to mucosa and submucosa
B1	Tumour penetrates into muscularis propria
B2	Tumour penetrates beyond muscularis propria
C1	B1 + lymph node metastasis
C2	B2 + lymph node metastasis
D	Distant metastasis

AJCC TNM Staging System for Colorectal Cancer

Primary Tumor (T)stage	
TX	Primary tumor cannot be assessed
T0	No e/o primary tumor
Tis	Ca in situ: intraepithelial/ invasion of lamina propria
T1	Tumor invades submucosa
T2	Tumor invades muscularis propria

T3	Tumor invade through the muscularis propria into the pericolorectal tissues
T4a	Tumor penetrates to the surface of the visceral peritoneum
T4b	Tumor directly invades or is adherent to other organs /structures
Regional Lymph Nodes (N)stage	
NX	Regional lymph nodes cannot be assessed
N0	No regional LN
N1a	Metastasis in 1 regional LN
N1b	Metastasis in 2-3 regional LN
N1c	Tr deposits in subserosa,mesentery,nonperitonalised pericolic or perirectal tissues without LN metastasis
N2	Metastasis in 4 or >4 regional LN
N2a	Metastasis in 4-6 regional LN
N2b	Metastasis in 7/> regional LN

Distant Metastasis (M)stage	
M0	No distant metastasis
M1a	Metastasis to one organ(liver,lung,ovary,nonregional LN)
M1b	Metastasis to >one organ/site or peritoneum

Histologic Grade (G)	
GX	Grade cannot be assessed
G1	Well differentiated
G2	Moderately differentiated
G3	Poorly differentiated
G4	Undifferentiated

Stage Grouping					
STAGES	**T**	**N**	**M**	**DUKES**	**MAC**
0	Tis	N0	M0		
I	T1	N0	M0	A	A

Stage Grouping					
STAGES	**T**	**N**	**M**	**DUKES**	**MAC**
	T2	N0	M0	A	B1
IIA	T3	N0	M0	B	B2
IIB	T4a	N0	M0	B	B2
IIIA	T1-T2	N1/N1c	M0	C	C1
	T1	N2a	M0	C	C1
IIIB	T3-T4a	N1/N1c	M0	C	C2
	T2-T3	N2a	M0	C	C1/C2
	T1-T2	N2b	M0	C	C1
IIIC	T4a	N2a	M0	C	C2
	T3-T4a	N2b	M0	C	C2
	T4b	N1-N2	M0	C	C3
IVa	Any T	Any N	M1a	-	-
IVb	Any T	Any N	M1b	-	-

Residual tumor ®

R0 – complete resection,margins negative,no residual tumor left

R1 – incomplete resection,margins positive,microscopic tumor left behind after resection of gross disease

R2 – incomplete resection,margins involved macroscopically or gross disease left behind after resection

Management of Colorectal cancer

Surgical management is the mainstay of CRC unless tumor is widespread or patients general condition is poor.Any premalignant lesions like a large sessile polyp or dysplasia in patients with ulcerative colitis) that cannot be managed nonoperatively indicates surgery.. Local tumor control generally is important to prevent local tumor related complications, like obstruction, perforation, bleeding, and pain. Even in the presence of liver or lung metastasis, resection of the primary tumor is advocated in CRC.Partial organ resection or metastasectomy can be performed with a cure rate of up to 38%, without altering the approach to the primary.In the presence of extensive metastases or peritoneal carcinomatosis, surgical cure is not possible.The best palliation in that case would be to prevent local complications and restore intestinal

continuity.NACT is not indicated in the CRC unless it is a locally very advanced cancer which is unresectable.

The main objective of surgery for colon carcinoma is to perform a curative resection by removing the cancerous segment of the colon, the mesentery with the primary feeding vessels and the lymphatics, and any organ with direct tumor involvement. Since the lymphatics of the colon run with the arterial supply of the colon, the primary artery supplying the segment of the colon to be resected is divided at its origin. Ligation at the origin of the vessel/ the no touch technique of Turnbull removes apical nodes, prognostically important for the patient. In all colon cancer cases,with radical excision of a colonic tumor, at least a 5-cm distal and proximal clearance is required. For cancer of the cecum, ascending colon and hepatic flexure, a right hemicolectomy is the best option,which is removal of the bowel 4 to 6 cm from the ileocecal valve upto that part of the transverse colon supplied by the right branch of the middle colic artery. An anastomosis is then created between the terminal ileum and the transverse colon. The no- touch technique of Turnbull addresses the vascular pedicle inititally and ligates the vessels before the tumour is handled/mobilized. This is supposed to reduce tumour embolization.

With locally advanced colon cancers, it is still possible to achieve cure if the surgeon is prepared to resect involved organs adjacent to the tumour. Unfortunately, it is often not possible to distinguish between malignant and inflammatory adhesions, but at least 40% of these adhesions harbor malignant cells. The surgeon therefore has to consider them malignant until proven otherwise and perform an en-bloc resection to achieve a tumor-free margin after resection.

Distant metastasis, particularly in the liver and lung, are a major cause of death in patients with colorectal cancer. Chemotherapy and surgical metastasectomy in selected patients of colon cancer may improve disease-free and overall survival with 30% cure rate. In the case of potentially resectable metastases in colon cancers, resection of the colonic primary tumor therefore should be performed in an oncologic fashion.

Adjuvant chemotherapy is indicated for stage IIB, stage III colon cancers. 5 FU/ leucovorin in combination with platinum based drugs like oxaliplatin (FOLFOX regimen) are the commonly used drugs. For stage IV colon cancer, liver metastases and isolated lung metastasis, amenable to resection must be surgically excised. Chemotherapy is indicated, with novel new agents complementing the 5-FU regimens that remain the cornerstone of therapy. The newest novel agents that have been shown to

be effective for metastatic disease and are now being studied in the adjuvant setting are the monoclonal antibodies bevacizumab (Avastin) and cetuximab (Erbitux). Cetuximab- epidermal growth factor receptor(EGFR) antibody binds and inhibits EGFR, overexpressed in 70% to 85% of colorectal carcinomas and is associated with a poor prognosis.Bevacizumab, vascular endothelial growth factor(VEGF) inhibitor, improves survival when used with irinotecan, 5-FU/leucovorin, or oxaliplatin.Radiotherapy has no primary role in treatment of CRC. Locoregional field radiation may prove to be useful in locally advanced T4N0–N1 colon tumors.

ILEOCECAL TUBERCULOSIS

Abdominal tuberculosis includes infection of the gastrointestinal tract, mesentery, lymph nodes, omentum, peritoneum and of solid organs in the abdomen like liver and spleen. The incidence of abdominal tuberculosis is obviously increasing because of the increase in incidence of AIDS. The most common site of involvement of abdominal tuberculosis is the distal ileum and cecum(90%) Intestinal tuberculosis can be

1. Ulcerative

2. Hyperplastic

3. Stricturous

4. Perforating

The bowel wall is usually thickened in the ileocecal region sometimes with an inflammatory mass.Inflammation,strictures and fistula may be seen. The intestinal serosa is covered with multiple tubercles, and mesenteric lymph nodes may be involved;on cut section caseous necrosis can be seen. The mucosa may be hyperemic, oedematous or ulcerated. Caseating granulomas are the common histological findings. Tuberculous ulcers are typically transverse to the bowel and rarely perforate. Along with the adjacent mesentery, lymph nodes and omentum the ileocecal region forms a palpable abdominal mass in the right iliac fossa. Sclerotic variants form strictures that cause intestinal obstruction. Hyperplastic types often result from the intense fibroblastic reaction in the submucosa and subserosa and form mass along with lymph node and mesentery.

Clinical features of Ileocaecal TB

Most of these patients c/o long duration of abdominal pain, mostly nonspecific that could be associated with weight loss, fever, and diarrhea. Abdominal TB is most commonly seen between 30 and 50 years of age. Females are MC affected than males.Complains range from colicky abdominal pain, borborygmi , vomiting. A doughy feel of the abdomen is most often perceived. A well defined, firm mobile mass can often be palpated in the right iliac fossa.The mc complication of SI tuberculosis is obstruction d/t luminal narrowing by hyperplastic ileocaecal tuberculosis, by strictures of the small bowel, which may multiple, or d/t adhesions. Adjacent lymph nodal involvement causes traction on the bowel, narrowing and fixity of bowel loops. 20% of intestinal obstruction in India is the result of TB. Tuberculosis accounts for 10% of SI perforations in India, and is the 2nd commonest cause after enteric fever. E/o TB on CXR and a h/o subacute intestinal obstruction should be carefully looked for. Radiographs can detect pneumoperitoneum in 50% of the cases. Tubercular perforations are single and proximal to a bowel stricture.Caseating lymph nodes may rupture to cause peritonitis.

Spread of TB

The spread of tuberculous infection to the abdomen is by ingestion of food especially milk contaminated with tubercle bacilli causing primary intestinal TB, or by swallowing of infected sputum containing tubercle bacilli coughed up from the lungs causing secondary intestinal tuberculosis. Infection can also spread retrograde from mesenteric lymph nodes which have been involved during primary infection. In India, *Mycobacterium.tuberculosis* is the mcc of abdominal tuberculosis.

Diagnosis of ileocaecal TB

Paustian stated that 1/> of the following 4 criteria to be fulfilled to diagnose abdominal TB:

i. E/o tubercles with caseation necrosis;

ii. typical gross intraop findings with mesenteric nodes exhibiting e/o TB;

iii. animal inoculation / culture of suspected tissue showing *M.tuberculosis colonies*;

iv. histological examination showing presence of acid fast bacilli(AFB) .

The diagnosis can be made by identifying the organism in tissue, by direct visualization with an AFB stain, or by culture of the excised tissue, or with PCR.

E/of TB in a CXR supports the diagnosis but a normal chest X-ray does not rule out abdominal TB. CXR more contributory in patients having acute complications (80%) .

Typical Radiographic findings are thickened bowel mucosa with distorted mucosal folds and ulcerations. Barium studies demonstrate strictures. Some signs commonly demonstrated are:

1. Straightening of the Ileocecal junction.

2. contracted caecum and ascending colon.

3. Sterling sign- terminal ileum is narrowed with shortened, rigid or obliterated caecum.

4. Pulled up cecum in the right hypochondrium.

5. Fleischer's sign(inverted umbrella sign – thickened and gaping ileocecal valve with narrowed terminal ileum).

6. String sign – persistent narrow stream of Ba indicating stenosis of that segment of intestine.

7. Goose neck deformity - Loss of normal ileocaecal angle with dilatation of terminal ileum, which appears as if suspended from a retracted, fibrosed cecum.

USG shows thickening of the intestinal wall, presence of lymph nodes and abscesses and dilated loops of bowel. Presence of fluid in between the loops gives rise to “Club Sandwich appearance”. CT can pick up thickening of the ileocecal valve and caecum. Laparoscopic findings suggestive of abdominal tuberculosis are thickened peritoneum, peritoneal tubercles and fibroadhesive peritonitis.

Treatment of abdominal TB

The organism responds to multidrug, antimicrobial treatment.. Surgery may be occasionally required for intestinal tuberculosis. Obstruction and fistula formation are the mc indications for surgery. Most fistulas respond to medical management. Free perforation or perforation with abscess/ massive hemorrhage are other indications for surgery. Limited right hemicolectomy is mc done for ileocaecal tuberculosis. Ileal or jejunal pathology can be treated with resection and anastomosis of bowel.Multiple strictures may have to be treated with

strictureplasty as extensive resection can cause short bowel syndrome. Adhesiolysis, drainage of abscess, resection of fistula are other means of management.

PSOAS ABSCESS

Retroperitoneal abscesses may be

1) Primary- the infection occurs via hematogenous spread

2) Secondary in relation to an infection in an adjacent organ. The conditions associated with the development of retroperitoneal abscesses are:

Etiology of Retroperitoneal Abscesses

Renal diseases causing abscess.
Gastrointestinal diseases, including diverticulitis, appendicitis, and Crohn's disease
Hematogenous spread from remote infective origin.
Abscesses complicating operative procedures in abdomen.
Bone infections, including TB spine.
Trauma
Malignancies

Infections originating from the kidney are often monomicrobial, involving gram-negative rods such as *Proteus mirabilis* and *E. coli*. Abscesses in diseases of the gastrointestinal tract involve *E. coli*, *Enterobacter* species, enterococci, and anaerobic species such as *Bacteroides*. These infections are multimicrobial, involving species such as gram-negative bacilli, enterococci, and anaerobic species. Infections from hematogenous spread are usually monomicrobial and related to staphylococcal sepsis. Tuberculosis of the spine is an important cause of retroperitoneal abscesses in immunocompromised patients and those immigrating from underdeveloped countries. The MC symptoms of RP abscesses are abdominal or flank pain, fever, chills, malaise,fatigue and weight loss. Individuals with psoas abscesses may have referred pain to the hip, groin, or knee. The duration of symptoms is usually longer than 1 week. Patients with retroperitoneal abscesses often have concurrent, chronic illnesses such as renal lithiasis, DM, human immunodeficiency virus (HIV) infection, or malignancies. CT shows a hypoechoic mass within the retroperitoneum with surrounding inflammation. Gas is seen in 1/3rd of these lesions. CT shows the location of the abscess as well as its relationship to contiguous organs,and the likely source of infection. Treatment consists of appropriate antibiotics and adequate drainage. CT-guided drainage is superior to blind drainage. Surgical drainage is

indicated for lesions where percutaneous management is not possible of fails.

INTUSSUSCEPTIONS

Intussusception is the telescoping of one portion of the intestine into the other and is the most common cause of intestinal obstruction in early childhood.It is rare in adults. Types of intussusception are:

1. Ileocolic
2. Colocolic
3. Ileoileal
4. Ileoileocolic

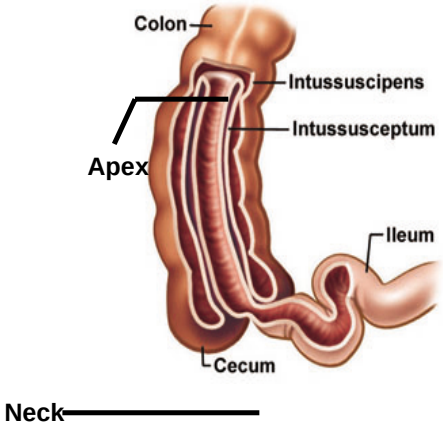
The colocolic intussusception type is the commonest type in adults.

Etiology of intussusception

The incidence of a pathologic lead point is up to 12% in most pediatric series and increases directly with age. Most adult intussusceptions have an underlying pathologic lesion that acts as a lead point. The most frequent lead point is Meckel's diverticulum; others-polyps, appendicitis, intestinal neoplasm, submucosal hemorrhage

associated with HSP, FB, ectopic pancreatic or gastric tissue, and intestinal duplication anomalies

Parts of intussusception



The entering bowel is the intussusceptum, the receiving bowel is the intussuscipiens, the narrow junction between the two is the neck and the part that advances is the apex of the intussusception.

Clinical Presentation of Intussusception.

Adults with intussception commonly present with features of intestinal obstruction. Bleeding per rectum is a common symptom. If malignancy is the cause of intussusception other features like wasting, ascites, liver nodules, may be present. Colocolic intussusception can protrude per rectum and be confused for rectal prolapse in elderly patients.

Diagnosis of Intussusception.

In about half of all the cases, the diagnosis of intussusception can be suspected on plain abdominal radiographs. Typical radiological features are presence of mass, scanty gas within the colon, or complete distal SI obstruction. In cases in which there is a low index of suspicion for intussusception based on clinical findings, an abdominal ultrasound may be an initial diagnostic test. The characteristic sonographic findings of intussusception include the "target sign"- intussuscepted layers of intestine seen on transverse view or the "pseudo kidney sign" on longitudinal view. Ba enema studies show a cup shaped filling defect called the "claw sign". "Coil spring" appearance is another feature in barium enema study. In adults CT scan abdomen and colonoscopy are indicated to rule out malignancy as the cause.

Non operative Management

With high index of suspicion, hydrostatic reduction by enema using contrast or air is the best option.The presence of peritonitis or hemodynamic instability are absolute CI to this method.Intussusception wholly within the small intestine is cannot be reached by enema;a likely lead point should be searched out for.Reduction is successful in approx. 80% of cases which is confirmed by resolution of the mass, along with

reflux of air into the proximal ileum.Reduction by saline enema under ultrasound surveillance reduces the radiological exposure,especially in children and the pregnant. Recurrence rates after hydrostatic reduction are roughly 11% and usually occur within the first 24 hours. 1st recurrence is can be managed by another attempt at hydrostatic reduction. A recurrence occurring for the 3rd time is better managed surgically.

Operative Management

Laparotomy is mandatory in all adult patients presenting with an intussusception. Laparoscopy may be useful as a first step to confirm the presence of an incompletely reduced intussusception and to facilitate reduction, thus avoiding a larger incision. The intussusceptum is delivered through a transverse incision in the right side of the abdomen and reduced by squeezing the mass retrograde from distal to proximal until completely reduced. Warm lap pads may be placed over the bowel and a period of observation may be warranted in cases of questionable bowel viability. Adhesive bands around the ileocecal junction are divided, and an appendectomy is then performed. Invariably, the lymphoid tissue within the ileocecal valve region is thickened and edematous and may be mistaken for a tumor within the small bowel. Experience with this condition may prevent an unnecessary bowel

resection. Bowel resection is done when the intussusception cannot be reduced, the viability of the intestine is uncertain, or a lead point is identified. An ileocolectomy with primary reanastomosis is the preferred technique.

OVARIAN TUMORS

Majority of the ovarian tumors are usually benign. Epithelial ovarian tumors are the mc ovarian tumors,arising from the surface epithelium of the ovary. They may be 'benign, low malignant potential (borderline), or malignant' . The different histologic varieties of epithelial tumors are: serous, mucinous, endometrioid, germ cell, and Brenner.

Germ cell tumors (GCTs), the 2nd mc type of ovarian tumor, are seen in women in 10-30 yrs age group. Around 3% are malignant. Malignant GCTs are: 1) dysgerminomas, 2) endodermal sinus tumors, 3) embryonal carcinomas, 4) nongestational choriocarcinomas 5) teratomas. Teratomas are the mc GCTs. They may be benign or malignant : Benign contain mature elements. Malignant teratomas contain immature elements (neural tissue). Teratomas like strumaovarii, containing mature thyroid tissue.

The 3rd mc ovarian tumors are those of a sex cord-stromal origin. They are: 1) granulosa stromal cell tumors, 2) Sertoli-stromal cell tumors, 3) Sertoli–Leydig cell tumors, and 4) gynandroblastomas.

Screening tests

CA-125

TV USG- transvaginal ultrasound

Tumor markers

CA-125 - malignant epithelial ovarian cancer.

CEA - Mucinous cystadenocarcinoma .

AFP, β-hcg, PLAP , and LDH – GCT

Steroid hormones – sex cord stromal tumors.

a) Funtional cysts of the ovary

They are the mc cystic structures found in the ovaries. They are transparent thin walled cysts varying from 3-20 cm in size. They are commonly seen in young, menstruating women. Treatment - cystectomy.

Another functional cyst is the corpus luteal cyst. They range from 2 to 8 cm in size. The bleeding can occur into the cyst.Another complication is an increase in size and rupture . Cystectomy should be done in such cases.

b) Benign ovarian neoplasms

1) Epithelial Ovarian Neoplasms

Benign serous and mucinouscystadenomas -They are mostly seen between ages 25 and 40. Almost 14% of serous cysts will be b/l; mucinous cysts are rarely b/l. Unilocularity is a f/o benign cysts. Mucinous cystadenomas are usually bigger, mostly >12 cm, sometimes growing up to 35 - 45cm.

2) Nonepithelial Ovarian Neoplasms

Benign cystic teratomas such as 1) dermoid cysts,2) mature teratomas are the mc GCTs (90%) and the most frequent benign ovarian tumors.They usually occur anywhere from childhood to the postmenopausal age group but are most frequently seen in 1st 3 decades of life. They are b/l in 25% of cases. Teratomas range from a few mm to 20 cm in diameter containing both cystic & solid components. The surface is usually smooth,sometimes shiny, and dirty white containing

thick pultaceous liquid and sometimes hair, cartilage or teeth . Treatment is cystectomy.

Fibromas -The peak age of incidence of fibroma is 48 yrs, misdiagnosed as leiomyomas in premenopausal females.They are mc solid benign tumors of ovary. Slow growing, size varying from 5 cm, they can weigh upto 20 kg. Meigs' syndrome consists of an ovarian fibroma with ascites and pleural effusion mostly on the right side ccurring in <2.5% of fibromas . Treatment is surgical excision.

c) Nonneoplastic adnexal masses

Endometriosis - the presence and growth of glands and/or stroma exactly similar to the lining epithelium of the uterus in an abnormal location.In the ovary, endometriomas is seen in 2/3rds of females with endometriosis. Endometriomas are one of the mcc of enlargement of the ovary most of them being asymptomatic.They vary from blue-black implants to large, multiloculated hemorrhagic cysts of almost 25 cm, but are usually <12 cm. Chocolate-like fluidis seen inside which are signs of previous hemorrhage. Rectosigmoid colon and rectum may be involved d/t adhesions. Treatment can be conservative management or surgery which depends on: extent, age, symptoms, & reproductive status of the patient.

Tuboovarian abscesses are seen in young females of reproductive age group. Patients with symptoms such as c/c pelvic pain, forniceal tenderness, low/high grade fever, and increased WBC count.Diagnosis is by USG , initially managed using i.v.antibiotics,Abscess is drained under CT guidance. If no clinical response to conservative therapy is seen, surgery is indicated-usually TAH + BSO(total abdominal hysterectomy and bilateral salpingo oopherectomy).Ipsilateral ovariectomy alone may be done in those who wish to preserve their child bearing functions.

Hydrosalpinx is a dilated FT with occlusion distally,often encompassing the ovary. They are caused by pelvic infections, adhesions after previous GIT or GUT surgery;can occur at any age. On USG, a sausage-shaped cystic mass can be seen.

d) Malignant ovarian tumors

1) Epithelial Carcinoma of the Ovary

Epithelial cancer of the ovary is the 2nd mc malignancy with a high mortality rate as >75% of patients present with stage IIIa,b,c or IV.

The various histologic subtypes according to WHO classification are: 1) serous mc) 2) mucinous, 3) endometrioid, 4) clear cell, 5) Brenner, and 6) undifferentiated.

‘Tumors of low or borderline malignant potential cause 12% -17% of ovarian epithelial tumors. They are tumors with areas of cytologic atypia without invasion into the stroma.They occur in younger age, u/l oophorectomy is the treatment of choice. TAH + BSO can also be done.

2) Malignant Germ Cell Tumors

Dysgerminomas are defined as solid masses arising from the ovary causing 45% of malignant GCTs of ovary. 85% is seen in patients in their 2nd & 3rd decades. They are b/l in ~15%. Dysgerminoma is highly chemosensitive. Less frequent GCTs of the ovary are:1) yolk sac tumors,2) immature teratomas, 3) embryonal carcinomas, and 4) choriocarcinomas. Surgical staging is crucial; metastatic disease is sampled. Postoperative CT must be given except for early teratomas, as there is high risk of recurrence.

3) Ovarian Sex Cord-Stromal Tumors

Granulosa cell tumors of the ovary 65% of this variety. They cause excess estrogen, accounting for postmenopausal bleeding or precocious puberty. Staging is similar to epithelial ovarian cancer. Treatment is a u/l salpingo-oophorectomy in those who wish to maintain fertility.In post menopausal women or those who have completed their families a total

abdominal hysterectomy and bilateral salpingo-oophorectomy can be done.

Sertoli–Leydig cell tumors are rare. They manifest with f/o virility —i) deepening of the voice, ii) hirsutism, iii) clitoromegaly, iv) amenorrhea, v) temporal hair loss—increased testosterone being synthesised.They occur in young females.Treatment is u/l salpingo-oophorectomy. Total abdominal hysterectomy and bilateral salpingo-oophorectomy is done when women have completed childbearing.

Surgical management of epithelial ovarian malignancies

Intra operative findings favoring an ovarian cancer are: i) ascites, ii) multiple cyst containing ovarian masses, iii) complex heterogenous tumors,iv) finger like projections on the surface of the ovary. Treatment also includes omentectomy, appendectomy, pelvic and para-aortic LN sampling

AIMS AND OBJECTIVES

1) To study the various clinical entities presenting as Right Iliac Fossa mass and their incidence.

2) To compare the sensitivity of clinical diagnosis with radiological diagnosis using imaging modalities like Ultrasonography and CT scan.

3) To compare the sensitivity of clinical and radiological diagnoses with the intraoperative diagnosis in cases where surgical exploration is undertaken and the final histopathological report.

STUDY CENTRE

Department Of General Surgery, Madras Medical College And Rajiv Gandhi Government General Hospital, Chennai-600003

MATERIALS AND METHODS

50 Patients presenting to the general surgery department with clinically palpable right iliac fossa mass over a period of 6 months were included in the study.Pediatric patients and patients with only right iliac fossa pain but no mass were excluded.

The patients were studied over a period of 6 months from June 2012-Dec 2012.

All patients were examined by me and history and physical examination findings were noted based on the proforma enclosed.

All patients underwent Ultrasonography of the abdomen and CT scan abdomen was taken for in patients who had a diagnosis other than appendicular mass.

35 cases underwent surgery and 33 of these cases had specimens removed and their histopathological report was compared with the pre operative clinical and radiological diagnosis

INFORMATION SHEET

We are conducting a study on **"VARIOUS CLINICAL ENTITIES PRESENTING AS INTRAABDOMINAL RIGHT ILIAC FOSSA MASS-A COMPARISON OF THE SENSITIVITIES OF THE CLINICAL, RADIOLOGICAL AND HISTOPATHOLOGICAL DIAGNOSIS"** among patients attending the General Surgical Department of Rajiv Gandhi Government General Hospital, Chennai.

The purpose of this study is to study various diseases presenting as right iliac fossa mass and comparing sensitivities of different modalities in their treatment such as clinical examination,imaging and surgical intervention.

We have issued a proforma and found eligible, we would like to use your specimen to perform some tests and study them which will not affect your final report or management.

The privacy of the patients in the study will be strictly maintained. In case of any publication or presentation, no personally identifiable information will be divulged.

Taking part in this study is a personal choice. You can decide whether or not to participate in this study ; you may also withdraw from the study at any time; your decision will not amount to any loss of benefits to which you are always entitled.

You will be informed about the results at the end of the study period or if anything is found abnormal that may help in the management or treatment during the study.

Signature of Investigator

Signature of Participant

Date :

Place :

PATIENT CONSENT FORM

Study Detail	:	VARIOUS CLINICAL ENTITIES PRESENTING AS INTRAABDOMINAL RIGHT ILIAC FOSSA MASS-A COMPARISON OF THE SENSITIVITIES OF THE CLINICAL,RADIOLOGICAL AND HISTOPATHOLOGICAL DIAGNOSIS
Study Centre	:	Rajiv Gandhi Government General Hospital, Chennai.
Name of patient	:	
Age of patient	:	
In patient Number	:	

Patient may check (□) these boxes

I confirm that I have understood the purpose of the above study. I can ask questions at any time and all my questions and doubts have been answered completely.

I understand that my participation in the study is a matter of personal choice and that I can withdraw at any point of time without any legal issues.

I understand that the investigator of the clinical study, the ethical committee and the regulatory authorities will not require my permission to look at my case details, both for the current study and any further studies that may be done in relation to it, even if I withdraw from the study I agree to this access.I also understand that my identity will remain confidential and no information will be released to third parties or published, unless if required under the law. I will not restrict the use of any data or results that arise from this study.

I agree to participate in the above study and to accept the instructions given at the time of the study and faithfully comply with the team.I will immediately inform the team if I suffer

from any deterioration in my well being or any if any unexpected or unusual symptoms develop as will be explained by the team.

I henceforth consent to participate in the study.

I therefore give complete consent to undergo thorough physical examination and investigations including hematological, biochemical, radiological and microbiological tests.

Signature/thumb impression

Patient's Name and Address:

Signature of Investigator

Study Investigator's Name:

PROFORMA

Patient details

1. Name

2. Age

3. Sex

4. IP No

Presenting complaints

1. Pain - present \ absent

   A. Nature – continuous\ colicky

2. Vomiting – present \ absent

3. Fever – present \ absent

4. Constipation – present \ absent (inability to pass stools for more than 3 days without the aid of laxatives is considered positive)

5. Bleeding P/R – present \ absent(1 or more episode of fresh blood in stools over the last 1 month is considered positive)

6. Melena – present\ absent (1 or more episodes of black tarry stools is considered positive)

7. Weight Loss – present \ absent (> 10% weight loss in 2 months time is considered weight loss)

8. Mass abdomen – present \ absent (if the patient complains of an abnormal palpable lump in the abdomen it is considered positive)

9. Anorexia – present\ absent

Past History

1. Tuberculosis – present\ absent (if patient has a history of diagnosed TB infection anywhere in the body it is considered positive)

    a. If positive whether he \she took complete treatment – yes\ no

2. History of seeking medical care for similar complaints in the past – yes\ no

3. History of acute RIF pain – yes \no

Clinical examination findings

1. Pallor - + / -

2. Lymphadenopathy - + / -

3. Examination of the Abdomen

    a. Examination of the RIF Lump

Tenderness	**Present\ absent**
Local rise of temperature	Present\ absent
Margins	Well defined\ ill defined
Consistency	Hard \ Firm \ Soft
Mobility	Free mobile \ Restricted Mobility \ Fixed

a. Hepatomegaly – Present\ Absent

i.If present whether nodular \ not

Clinical diagnosis -

Radiological diagnosis -

Intraoperative diagnosis -

Histopathologic diagnosis -

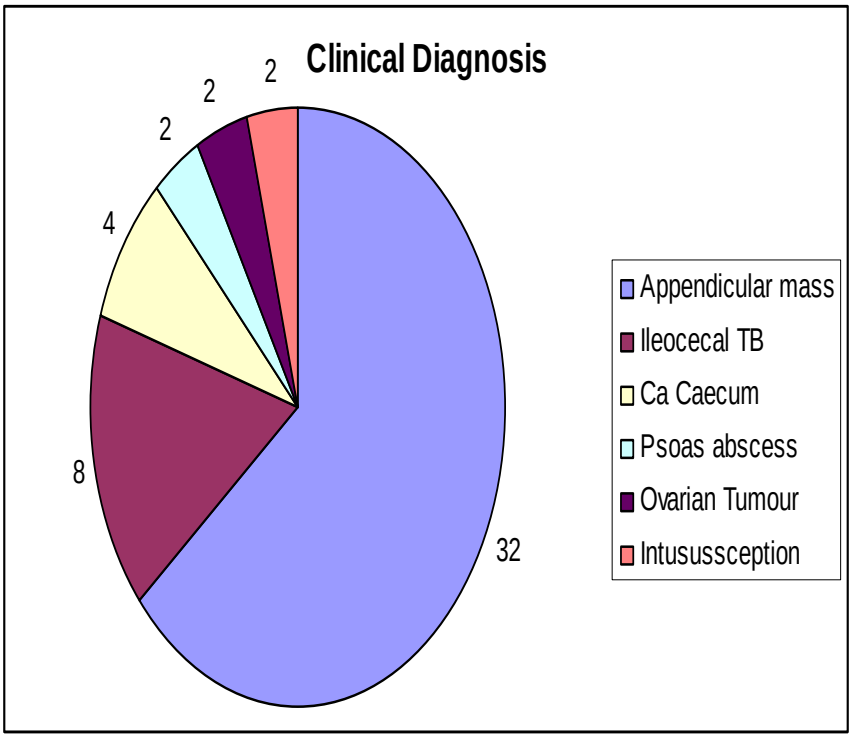
RESULTS

This study looks at 50 consecutive cases admitted in the surgical wards that had a palpable right iliac fossa mass on examination.

CLINICAL DIAGNOSIS

Of these 50 cases the clinical diagnosis in 32 cases was appendix masses, in 8 ilecocecal tuberculosis, in 4 malignancies of the caecum, in 2 psoas abscesses, in 2 ovarian tumours and i2 intussusception.

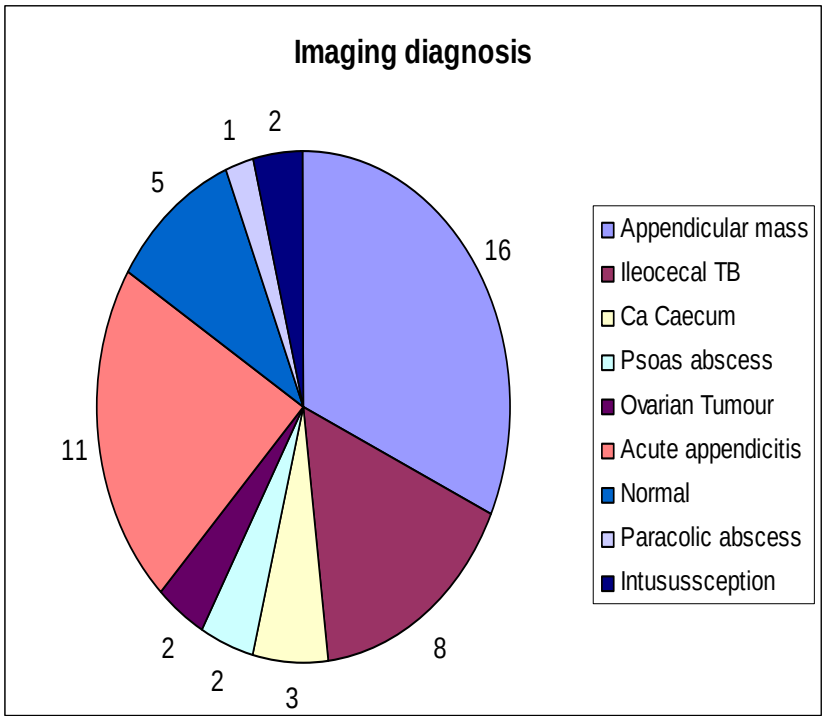
Total number of cases	**50**
Appendix mass	32
Ileocecal TB	8
Ca Caecum	4
Psoas abscess	2
Ovarian Tumour	2
Intususception	2


Clinical Diagnosis
2
2
2
4
8
32
Appendicular mass
Ileocecal TB
Ca Caecum
Psoas abscess
Ovarian Tumour
Intususception

IMAGING DIAGNOSIS

All these 50 cases underwent diagnostic imaging using Ultrasound abdomen. The 32 cases of appendix mass underwent only ultrasonography as the diagnostic imaging modality, while the rest of the cases underwent a CT scan abdomen following an ultrasonogram. The CT scan diagnosis is considered as the imaging diagnosis in case it is done else the ultrasound report is considered here for the imaging diagnosis.

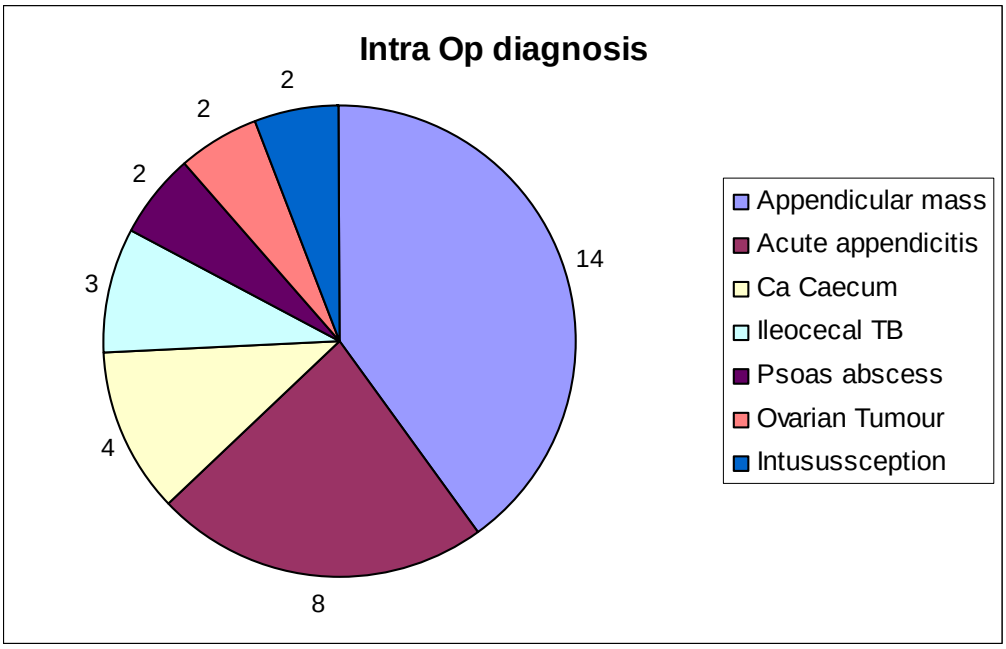
Imaging diagnosis	
Total number of cases	**50**
Appendix mass	16
Acute appendicitis	11
Ileocecal TB	8
Normal	5
Ca Caecum	3
Psoas abscess	2
Ovarian Tumour	2
Intusussception	2
Paracolic abscess	1


Imaging diagnosis
16
8
3
2
2
11
5
1
2
Appendicular mass
Ileocecal TB
Ca Caecum
Psoas abscess
Ovarian Tumour
Acute appendicitis
Normal
Paracolic abscess
Intusussception

INTRA OPERATIVE DIAGNOSIS

35 of these patients underwent surgery. Except for the 2 cases of psoas abscesses which were drained the remaining 33 cases had specimens removed and sent for histopathology. In cases of appendicular pathology the pathologist reported all cases of appendicular pathology as appendicitis irrespective of whether appendix masses were seen intra op or not.

Intra op diagnosis	
Total number of cases	**35**
Appendix mass	14
Ileocecal TB	3
Ca Caecum	4
Psoas abscess	2
Ovarian Tumour	2
Acute appendicitis	8
Intusussception	2


Intra Op diagnosis
2
2
2
14
3
4
8
Appendicular mass
Acute appendicitis
Ca Caecum
Ileocecal TB
Psoas abscess
Ovarian Tumour
Intususception

CLINICAL DIAGNOSIS The clinical diagnosis is based upon the patient symptomatology and the examiner's clinical findings. The distribution of the various clinical findings and history details in the 6 categories of clinical diagnosis are given below;

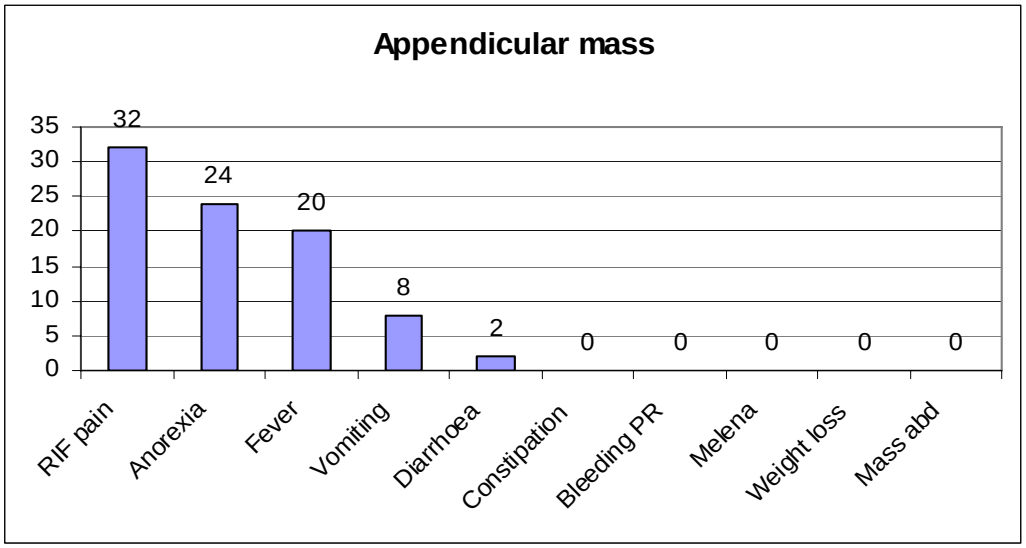
	Appendix mass	**Ileocecal TB**	**Ca Cecum**	**Psoas Abscess**	**Ovarian Tumor**	**Intussusception**
Number of cases	**32**	**8**	**4**	**2**	**2**	**2**
History findings						
RIF pain	32	8	2	2	0	2
Colicky	20	8	2	0	0	2
Continous	12	0		2	0	0
Vomiting	8	0	0	0	0	2
Fever	20	0	0	2	0	0
Constipation	0	0	0	0	0	0
Diarrhoea	2	0	0	0	0	2
Bleeding PR	0	2	0	0	0	2
Melena	0	0	4	0	0	0
Weight loss	0	6	2	0	0	0
Mass abd	0	0	2	0	2	0
Anorexia	24	6	2	0	0	1
Past h/o TB	0	6	0	0	0	0
Past h/o similar	4	4	0	0	0	1

Signs						
Pallor	0	4	2	0	0	0
LNE	0	0	0	0	0	0
Tender RIFlump	32	4	2	2	0	0
Local of temp	11	0	0	2	0	0
Margin ill def	32	8	3	2	0	0
Margins well def			1	0	2	2
Consist: Firm	32	8	4	2	2	2
Mobility Restrd	32	8	3	2	0	2
Mobility free	0	0	1	0	2	0
Hepatomegaly	0	0	0	0	0	0

SYMPTOMS AND HISTORY FINDINGS

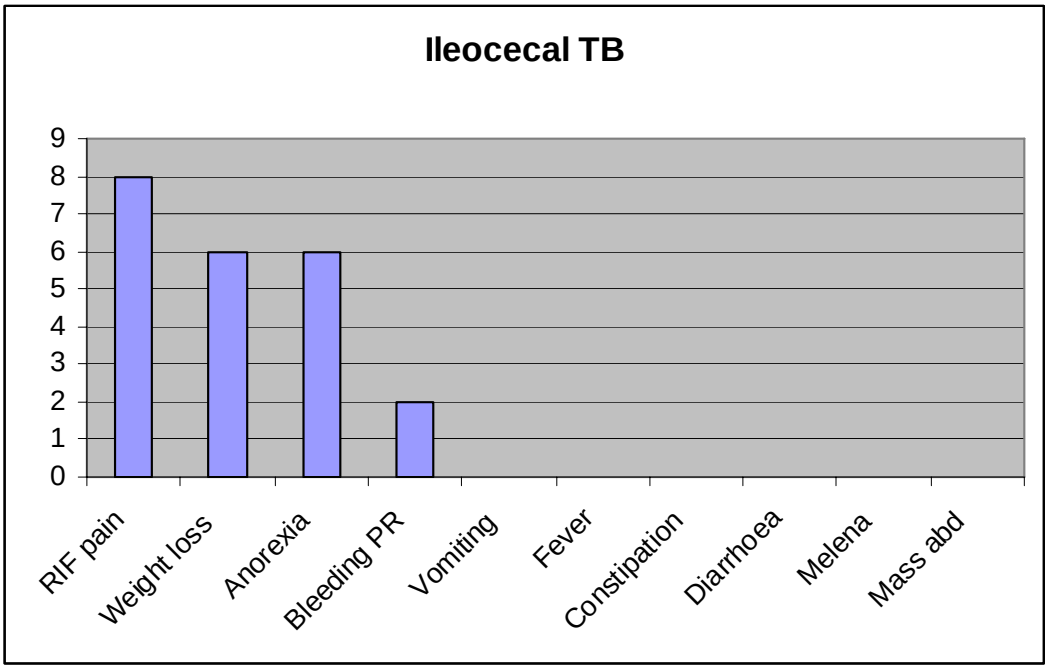
The symptoms and history findings in the 32 patients with appendix mass were as follows

Appendix mass (32 cases)	
RIF pain	32
Colicky	20
Continous	12
Anorexia	24
Fever	20
Vomiting	8
Diarrhoea	2
Past h/o similar illness	4



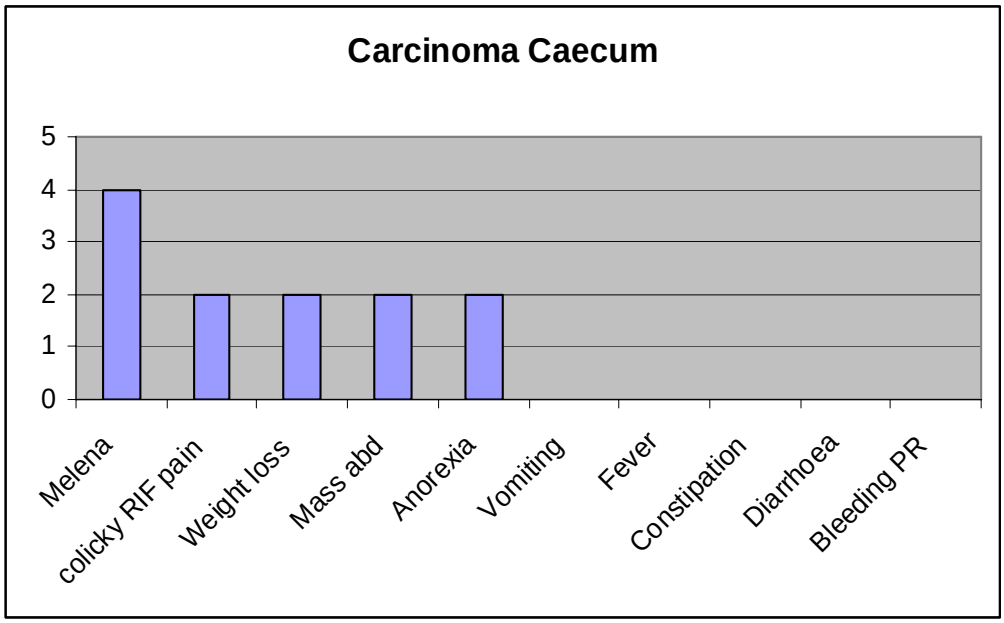
The symptoms and history of those who were diagnosed to have ileocecal tuberculosis were

Ileocecal Tuberculosis (8 cases)	
RIF pain	8
Colicky	8
Continous	0
Weight loss	6
Anorexia	6
Bleeding PR	2
Past h/o TB	6
Past h/o similar illness	4



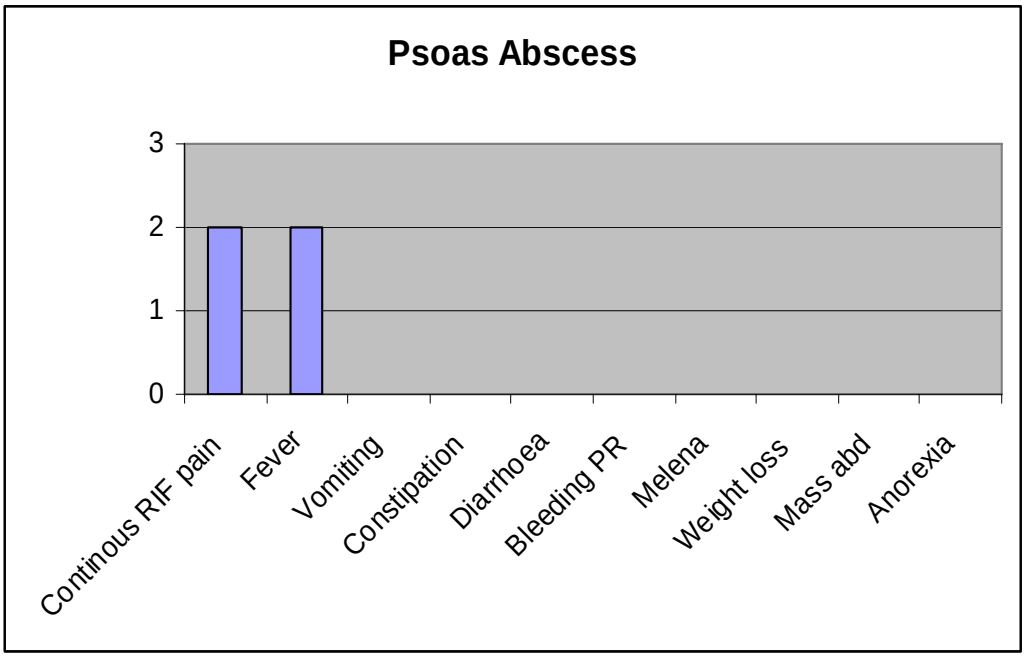
The symptoms and history of those who were diagnosed with carcinoma caecum were

Ca Caecum (4 cases)	
Melena	4
RIF pain	2
Colicky	2
Continous	0
Weight loss	2
Mass abd	2
Anorexia	2
Past h/o TB	0
Past h/o similar illness	0



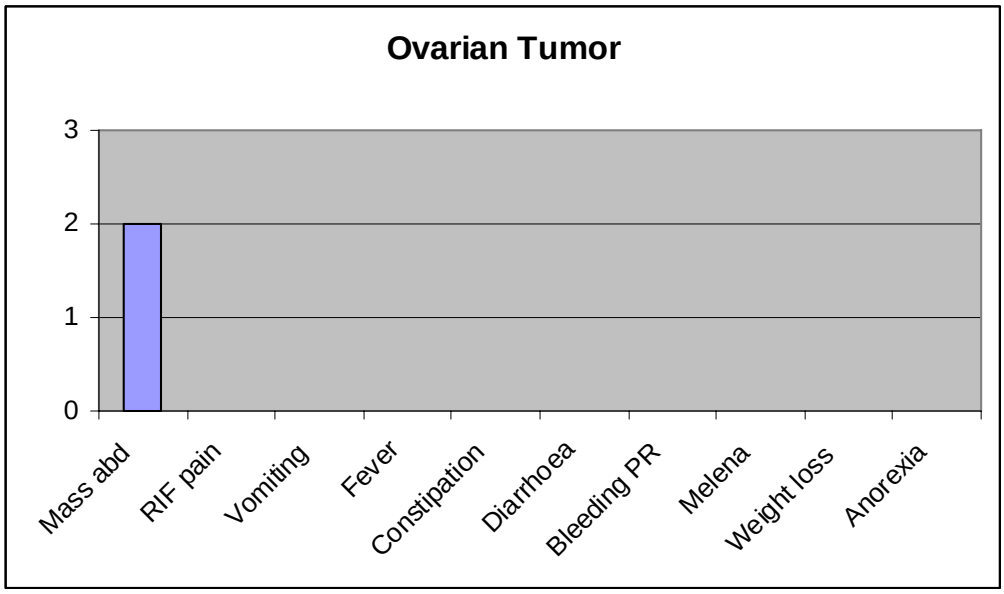
The symptoms and history of patients who were clinically diagnosed to have psoas abscess were

Psoas Abscess (2 cases)	
RIF pain	2
Colicky	0
Continous	2
Fever	2
Past h/o TB	0
Past h/o similar illness	0



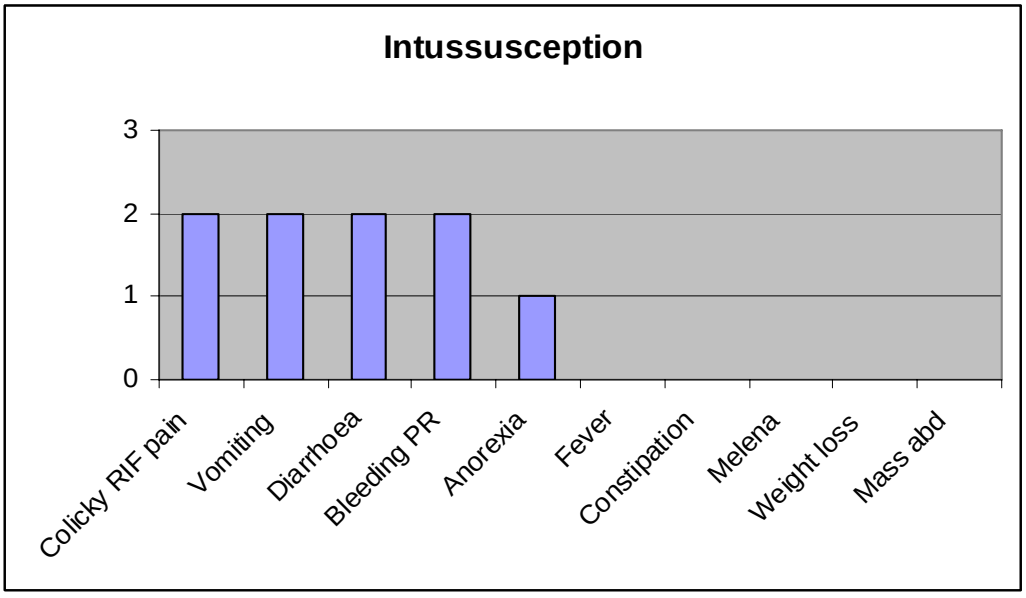
The symptoms and history of patients who were clinically diagnosed to have ovarian tumor were

Ovarian tumor 2 cases	
Mass abd	2
Past h/o TB	0
Past h/o similar illness	0



The symptoms and history of patients who were clinically diagnosed to have intussusception were

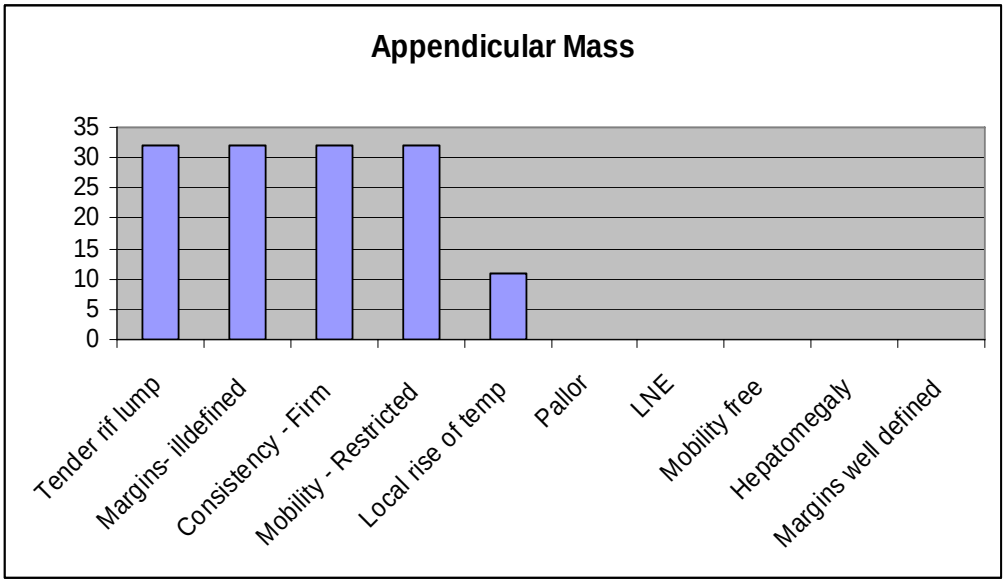
RIF pain	2
Colicky	2
Continous	0
Vomiting	2
Diarrhoea	2
Bleeding PR	2
Anorexia	1
Past h/o TB	0
Past h/o similar illness	1



EXAMINATION FINDINGS

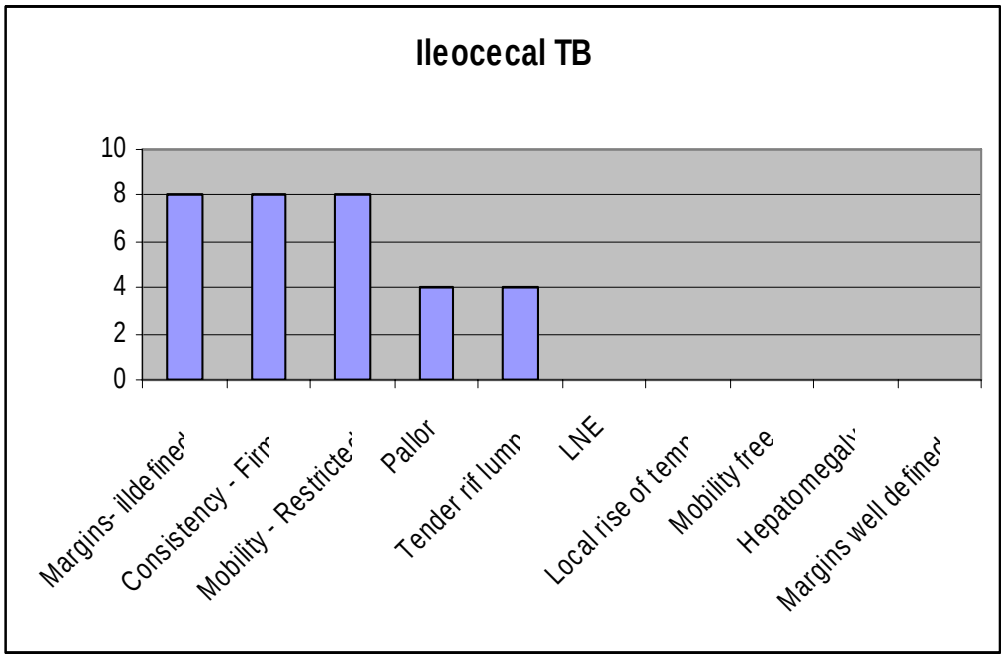
The clinical examination findings in these 50 patients were as follows The 32 cases of appendix mass on examination had these findings

Appendix mass	
Tender rif lump	32
Margins- illdefined	32
Consistency - Firm	32
Mobility - Restricted	32
Local rise of temp	11



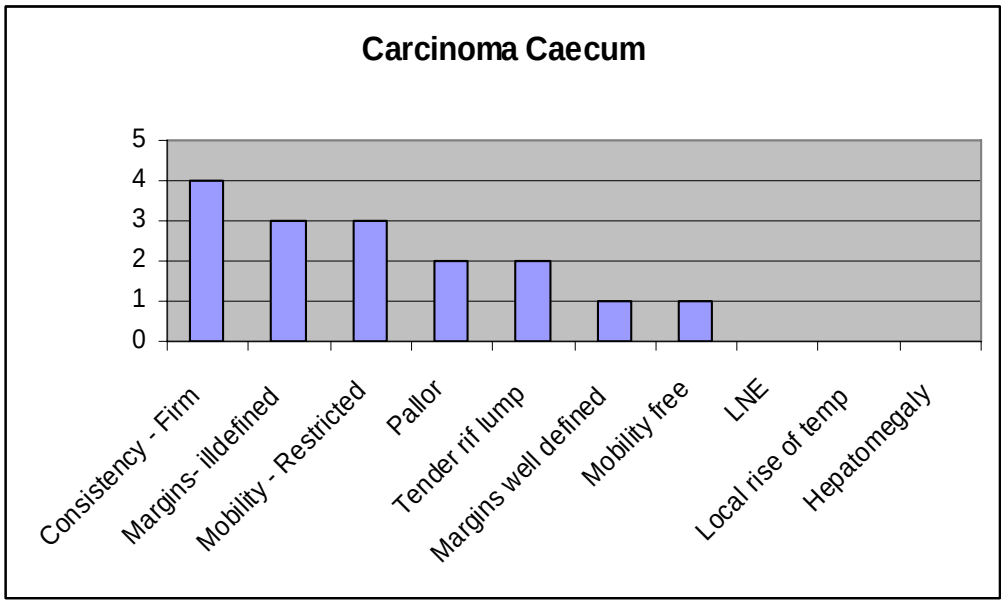
The clinical findings in patients clinically diagnosed to have ileocecal tuberculosis are

Ileocecal tuberculosis	
Margins- illdefined	8
Consistency - Firm	8
Mobility - Restricted	8
Pallor	4
Tender RIF lump	4



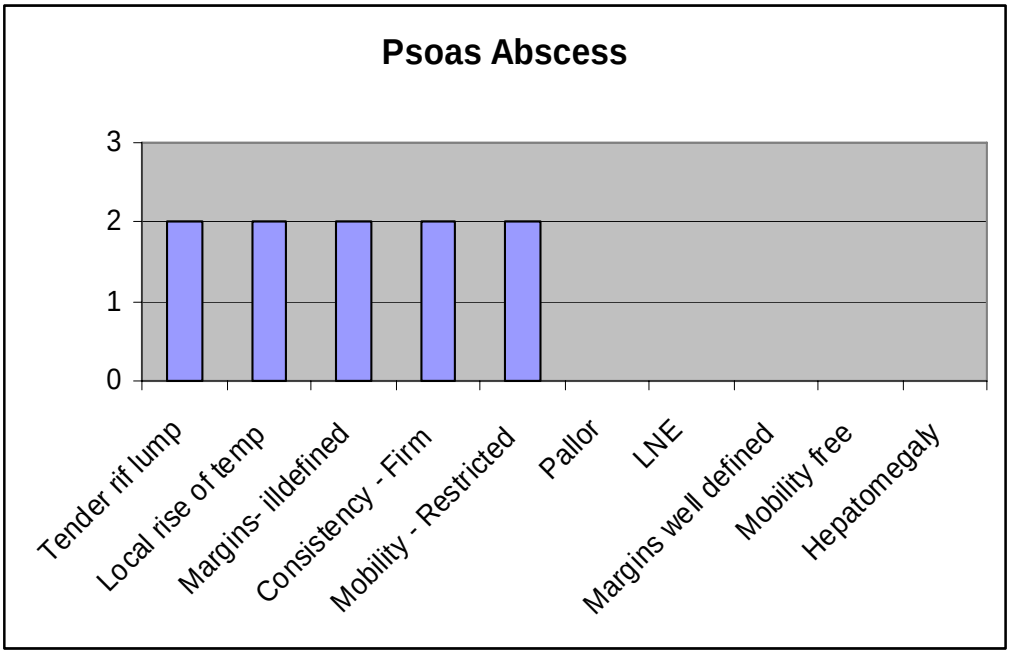
The clinical findings in patients diagnosed to have carcinoma caecum are

Carcinoma Caecum	
Consistency - Firm	4
Margins- illdefined	3
Mobility - Restricted mobility	3
Pallor	2
Tender RIF lump	2
Margins well defined	1
Mobility free	1



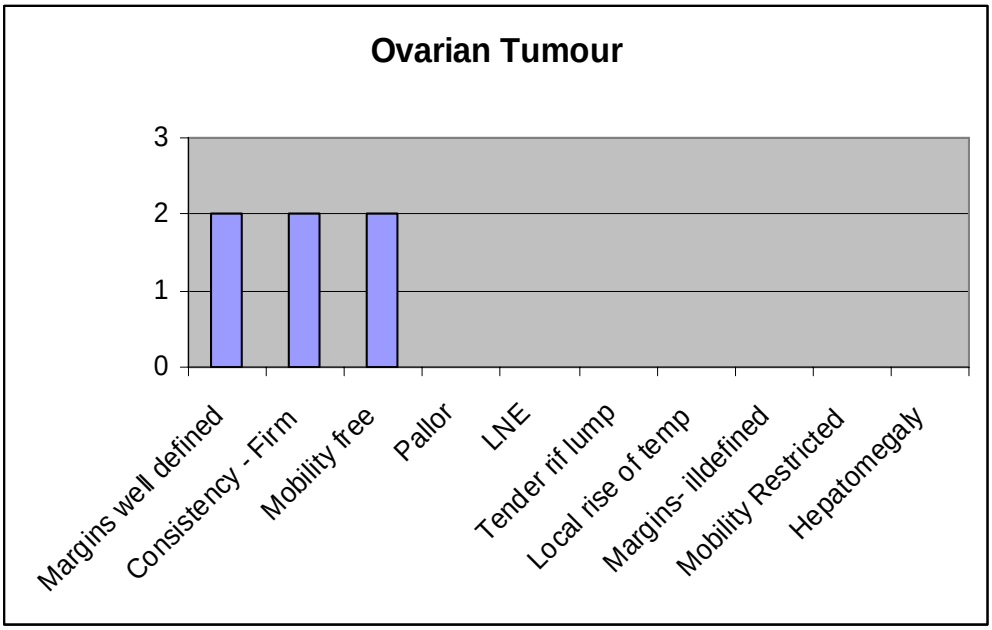
The clinical findings in those diagnosed to have psoas abscess were

Tender rif lump	2
Local rise of temp	2
Margins- ill defined	2
Consistency - Firm	2
Mobility - Restricted mobility	2



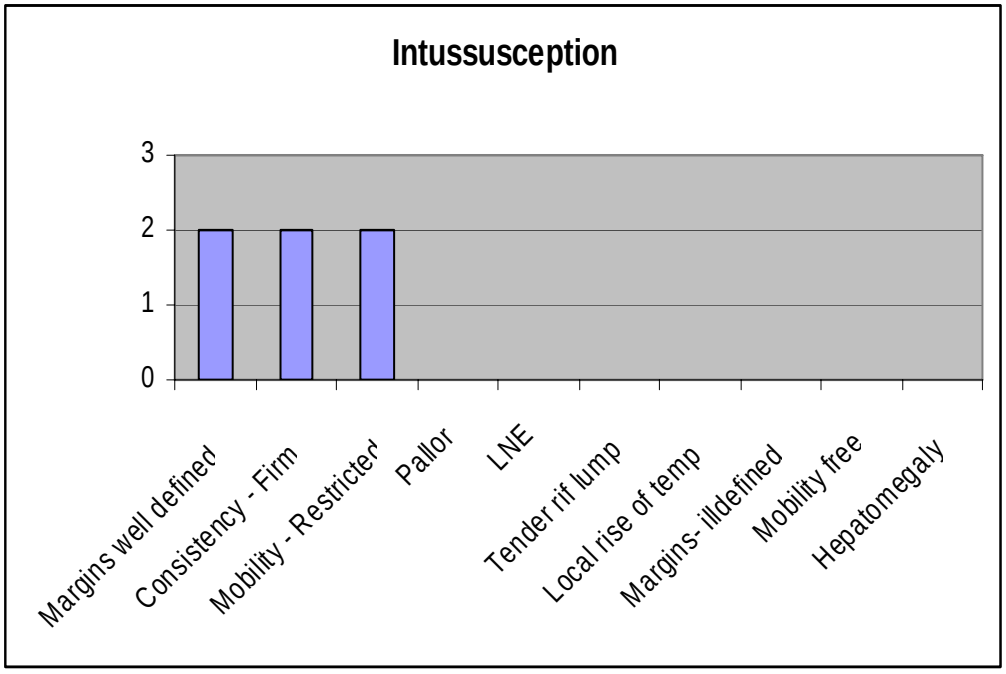
The clinical findings in those diagnosed to have Ovarian tumor were

Margins well defined	2
Consistency - Firm	2
Mobility free	2



The clinical findings in those diagnosed to have Intussusception were

Margins well defined	2
Consistency - Firm	2
Restricted Mobility	2

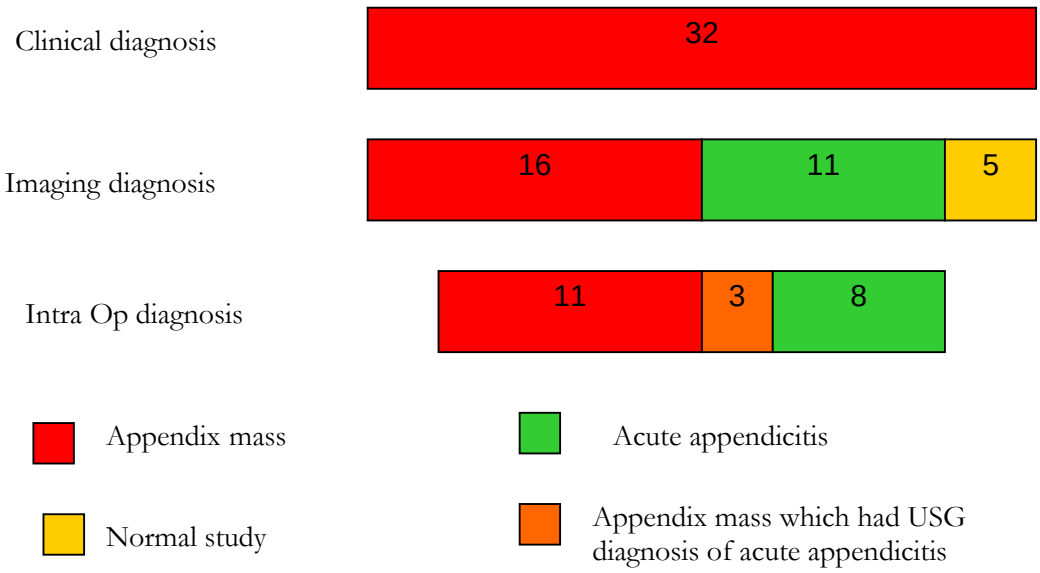


DISCUSSION

APPENDIX MASS

Of the 32 cases diagnosed to be appendix mass clinically USG abdomen reported appendix mass in 16 cases, appendicitis in 11 cases and normal study in 5 cases.

Of these 32 cases 22 were taken up for surgery. During surgery 14 cases of the 22 cases diagnosed to have early mass formation had appendix mass while the other 8 only had features of appendicitis. Of the 22 cases 11 cases had USG report of appendicitis and 11 had report of appendix mass. All the 11 cases which USG reported as Acute appendicitis were operated upon. Of these 11 cases that USG reported as acute appendicitis 8 had mass formation intra op while 3 had acute appendicitis only. The 11 cases which USG diagnosed as suspected appendix mass and were operated upon had early appendix mass formation intraoperatively.



Number of cases in which clinical diagnosis matched imaging diagnosis – 16 / 32

Number of cases in which clinical diagnosis matched final diagnosis – 11/22

Number of cases in which imaging matched final diagnosis – 19/22

Age distribution – 15 to 48 yrs

Males 18

Females 14

Most common symptom – pain 32/ 32

Most common sign – tender RIF lump 32/32

ILEOCECAL TB

Of the 8 cases which had a clinical diagnosis of ileocecal TB all had USG and CT findings suggestive of Ileocecal Tuberculosis. 3 out of these 8 cases were operated on features of intestinal obstruction. All these patients underwent right hemicolectomy and the histopathological report confirmed tuberculosis.

Number of cases in which clinical diagnosis matched imaging diagnosis – 8/8

Number of cases in which clinical diagnosis matched final diagnosis – 3/3

Number of cases in which imaging matched final diagnosis – 3/3

Age distribution- 30 to 52

Males 3

Females 5

Most common symptom – colicky pain 8/8

Most common Sign – ill defined, firm lump with restricted mobility 8/8

Past history of Tb – 6/8

CA CAECUM

4 cases were diagnosed as carcinoma caecum based on the clinical findings. Imaging findings (CT scan) concurred with clinical findings in 3 cases. In 1 case the CT scan report was that of a paracolic abscess. All 4 cases were operated upon and intra operatively the findings were suggestive of carcinoma caecum. All 4 patients underwent right hemicolectomy. The histopathological reports of all 4 cases were carcinoma caecum.

Number of cases in which clinical diagnosis matched imaging diagnosis – 3/4

Number of cases in which clinical diagnosis matched final diagnosis – 4/4

Number of cases in which imaging matched final diagnosis – 3/4

Age distribution – 40 to 60

Males 4

Females 0

Most common symptom – Melena 4/4

Most common Sign –firm lump 4/4

PSOAS ABSCESS

There were 2 cases diagnoses clinically and radiologically to be psoas abscess. Both cases underwent extraperitoneal drainage through flank incisions. Pus was sent for culture and sensitivity and in both cases Staphylococcus *aureus* was isolated.

No. of cases in which clinical diagnosis matched imaging diagnosis – 2/2

No. of cases in which clinical diagnosis matched final diagnosis – 2/2

No. of cases in which imaging matched final diagnosis-2/2

Age 20 to 40

Males 2

Females 0

Most common symptom – fever and pain 2/2

Most common Sign – tender swelling, with local rise of temp, ill defined, firm lump with restricted mobility 2/2

OVARIAN TUMOUR

There were 2 females diagnosed to have ovarian tumors both clinically and radiologically. Both of them underwent unilateral oopherectomy as they appeared benign intra operatively. The histopathology report was dermoid cyst in 1 case and serous cystadenoma in the other.

No. of cases in which clinical diagnosis matched imaging diagnosis – 2/2

No. of cases in which clinical diagnosis matched final diagnosis – 2/2

No. of cases in which imaging matched final diagnosis-2/2

Age 30 to 40

Most common symptom – Mass abdomen 2/2

Most common Sign –firm, non tender freely mobile, well defined lump 2/2

INTUSSUSCEPTION

No. of cases in which clinical diagnosis matched imaging diagnosis – 2/2

No. of cases in which clinical diagnosis matched final diagnosis – 2/2

No.of cases in which imaging matched final diagnosis-2/2

Age 42 to 50

Males 2

Females 0

Most common symptom – Colicky RIF pain, Bleeding PR, Vomiting and diarrhea 2/2

Most common Sign – Well defined, firm RIF lump with restricted mobility 2/2

CONCLUSIONS

1. Appendicular mass is the commonest condition presenting as right iliac fossa mass.

2. Clinical diagnosis and imaging diagnosis is in concordance only in 50% cases of appendicular mass

3. Clincal diagnosis is accurate in only 50% cases of appendicular mass

4. Imaging diagnosis is accurate in 86% cases of appendicular mass

5. Ileocecal tuberculosis is the 2nd most common condition presenting as right iliac fossa mass. This is unlike in western populations where Crohn's disease and malignancy of the caecum are commoner causes

6. There was a female preponderance in the incidence of ileocecal tuberculosis. Female: Male ratio was 62.5 : 37.5 in this study. This is in concurrence with other studies from the Indian subcontinent.

7. Clinical diagnosis and imaging is highly accurate in diagnosing ileocaecal tuberculosis. There was 100% concurrence between both clinical diagnosis and imaging diagnosis. Also both clinical

diagnosis and imaging diagnosis were in 100% agreement with histopathologic result.

8. Past history of tuberculosis is present in 75 % of cases of ileocecal tuberculosis.

9. Clinical impression was more accurate than imaging result in case of Carcinoma caecum. In this study clinical diagnosis agreed with final histopathology report in 100% of cases while imaging was accurate only in 75% of cases.

10. Carcinoma of caecum was found only in males in this study.

11. Clinical assessment and imaging were 100% accurate in diagnosing Psoas abscess.

12. Clinical assessment and imaging were 100% accurate in diagnosing Ovarian tumors.

13. Clinical assessment and imaging were 100% accurate in diagnosing intussusception.

14. In this study both cases of intussusception were due to small bowel polyps.

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NAME	AGE/SEX	IP NO	CLINICAL DIAGNOSIS	RADIOLOGICAL DIAGNOSIS	INTRAOPERATIVE DIAGNOSIS	HITOPATHOLOGICAL DIAGNOSIS
RAJI	47/M	65865	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
MADHAVAN	34/M	70935	PSOAS ABSCESS	PSOAS ABSCESS	PSOAS ABSCESS	PSOAS ABSCESS
SHANMUGAM	45/M	71418	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
PARIMALA	35/F	71320	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
NITISH KUMAR	21/M	70044	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
VIJAYAKUMAR	34/M	67903	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
SEKAR	55/M	73718	CARCINOMA CAECUM	PARACOLIC ABSCESS	CARCINOMA CAECUM	CARCINOMA CAECUM
MANJULA	30/F	73403	OVARIAN TUMOR	OVARIAN TUMOR	OVARIAN TUMOR	DERMOID CYST
MOHD.MEERAN	45/M	77588	APPENDICULAR MASS	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS
PARTHIPAN	44/M	77561	CARCINOMA CECUM	CARCINOMA CAECUM	CARCINOMA CAECUM	CARCINOMA CAECUM
PATCHIYAMMAL	46/F	77914	OVARIAN TUMOR	OVARIAN TUMOR	OVARIAN TUMOR	SEROUS CYSTADENOMA
MADHAVAN	20/M	76726	APPENDICULAR MASS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
BABU	33/M	76803	PSOAS ABSCESS	PSOAS ABSCESS	PSOAS ABSCESS	PSOAS ABSCESS
IYYAMMAR	5O/M	74192	CARCINOMA CAECUM	CARCINOMA CAECUM	CARCINOMA CAECUM	CARCINOMA CAECUM

NATARAJAN	62/M	74568	CARCINOMA CAECUM	CARCINOMA CAECUM	CARCINOMA CAECUM	CARCINOMA CAECUM
SHANTHI	48/F	75175	INTUSSUSCEPTION	INTUSSUSCEPTION	INTUSSUSCEPTION	INTUSSUSCEPTION
VENKATESH	18/M	67893	ACUTE APPENDICITIS	ACUTE APPENDICITIS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
JAYAKUMAR	45/M	70367	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
POWARI	44/M	81368	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
ANNAMALAI	38/M	82102	APPENDICULAR MASS	APPENDICULAR MASS		
VENKATARAMAIAH	47/M	84475	INTUSSUSCEPTION	INTUSSUSCEPTION	INTUSSUSCEPTION	INTUSSUSCEPTION
SAMPATH KUMAR	45/M	85879	ILEOCECAL TUB	ILEOCECAL TUB		
NIRMALA	35/F	83564	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
PALANIAMMMAL	34/F	85517	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB
SATHYARAJ	20/M	91409	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
TAMILARASI	42/F	90336	APPENDICULAR MASS	APPENDICULAR MASS		
SULOCHANA	48/F	94478	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB
JAMRUTH	35/F	95174	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
VEERASAMY	45/M	92816	ILEOCECAL TUB	ILEOCECAL TUB		

ALAENA	44/F	95544	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
PRIYADARSHINI	18/F	100212	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
DHANALAKSHMI	40/F	89055	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
SUJATHA	35/F	102587	ACUTE APPENDICITIS	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS
GOMALAMMAL	56/F	97273	CARCINOMA CAECUM	CARCINOMA CAECUM	APPENDICULAR MASS	APPENDICULAR MASS
CHELLAMMAL	55/F	101291	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
ELUMALAI	45/M	96625	ILEOCECAL TUB	ILEOCECAL TUB		
KUMARAJURU	24/M	88971	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS	APPENDICULAR MASS
SUSEELA	45/F	105018	ACUTE APPENDICITIS	ACUTE APPENDICITIS	APPENDICULAR MASS	APPENDICULAR MASS
SUNDHAR	44/M	103927	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB	ILEOCECAL TUB
KANIKAIMARY	55/M	103940	APPENDICULAR MASS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
ELUMALAI	35/M	104536	ILEOCECAL TUB	ILEOCECAL TUB		
RAJA	45/M	109452	APPENDICULAR MASS	APPENDICULAR MASS		
VIJAYARAM	49/F	108354	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
MANIJAMMAL	55/F	91573	ILEOCECAL TUB	ILEOCECAL TUB		

MOORTHY	46/M	97845	APPENDICULAR MASS	APPENDICULAR MASS		
JAMMUNA	36/F	108172	ILEOCECAL TUB	ILEOCECAL TUB		
MOORTHY	44/M	109302	APPENDICULAR MASS	APPENDICULAR MASS		
CHINNAPILLAI	45/F	97881	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS
LAKSHMI	43/F	112804	ACUTE APPENDICITIS	APPENDICULAR MASS	ACUTE APPENDICITIS	ACUTE APPENDICITIS